This is a reissue divisional (and claims the benefit of priority under 35 USC 120) of U.S. application serial no. 08/122,934, filed September 17, 1993, which is an application for reissue of U.S. patent 5,050,166 (now Patent No. RE37,494, issued January 1, 2002) claiming the priority date of U.S. patent 5,050,166. The disclosure of the prior application is considered part of (and is incorporated by reference into) the disclosure of this application.

This application claims (under 35 USC § 119) the benefit of patent application serial number P10884, filed in Australia on March 17, 1987.

IN THE CLAIMS:

Please cancel claims 1-14, 16 and 24. (Note claims 1-14 were issued in a previous reissue application Serial No. 122,934 filed September 17, 1993, now U.S. Reissued Patent RE37,494 which issued on January 1, 2002. That U.S. reissue patent and this application are divisional reissue applications of U.S. Patent 5,050,166.)

Please amend the claims 15, 17-23 and 25-27 of the application to read as follows:

15. (Amended) A method of transmitting variable length messages on a network from a source to a destination, said method comprising

segmenting each message into a plurality of fixed length slots, each of which slots includes a header field and a message segment,

providing a source identifier field in the header field of each slot, said source identifier field including a source identifier code that is uniquely associated with the message to be transmitted,

transmitting the slots on the network,

providing a type field in the header of each slot,

coding into the type field, a code selected from a first code, a second code, and a third code, respectively representing a beginning of a message, a continuation of a message, and an end of a message, and

controlling the reassembly of received slots at the destination in accordance with said source identifier code, the first code, the second code, and the third code.

16. **(Cancelled)**

17. (Amended) A method as claimed in claim **15**, further comprising

transmitting the destination address field in the message segment of the first slot of the message, and

checking a destination address field associated with the message, for a match with an address associated with the destination.

18. (Amended) A method as claimed in claim **15**, further comprising storing message segments associated with a single message in a buffer.

19. (Amended) A method as claimed in claim **18** further comprising

providing the source identifier code to a comparator in response to detection of said first code at said destination, and

in response to detection of the second code associated with a subsequently received slot providing the source identifier thereof to the comparator to check for a match, and

storing the message segment of the subsequently received slot in said buffer in response to detection of a match.

20. (Amended) A method as claimed in claim 19, further comprising outputting the reassembled slots in the buffer from the buffer as a reassembled message in response to detection of said third code.

21. (Amended) A method as claimed in claim 15, further comprising

coding, into the type field, a fourth code representing a single segment message, and

if said fourth code is detected in a slot received at the destination, storing the message segment thereof in a single segment buffer.

22. (Amended) A method as claimed in claim 20, further comprising

providing multiple comparators and buffers at the destination so as to enable simultaneous receipt of a plurality of messages, each having its own source identifier code, and

storing the message segments of each message in respective buffers.

23. (Amended) Apparatus for transmitting variable length messages on a network from a source to a destination in fixed length slots, said apparatus including;

a segmentation machine for segmenting the messages into fixed length slots, each of which includes a header field and a message segment, said segmentation machine including coding means

for providing a source identifier field in the header of each slot, said source

identifier field including a source identifier code that is uniquely associated

with the message to be transmitted, and

for providing a type field in the header field of each slot, and

for providing a code selected from a first code, a second code, and a third code

representing, respectively, a beginning of a message, a continuation of a

message and an end of a message; and

a reassembly machine located, in use, at the destination, said reassembly machine

including control means for controlling reassembly of the slots in accordance with

respective source identifier codes of the slots, said control means being responsive to

said source identifier code, said first code, said second code, and said third code.

24.   **(Cancelled)**

25. <u>(Amended)</u> Apparatus as claimed in claim **23** wherein the message includes a destination

address field and wherein the segmentation machine is arranged to transmit the destination

address field in the message segment of the first slot of the message.

26. <u>(Amended)</u> A method of transmitting a variable-length message on a network from a source

having a source address to a destination having a destination address, said method comprising:

segmenting the variable-length message into a plurality of fixed length slots including a

first slot, continuing slots, and a last slot, each of said fixed length slots including

a header field that includes a source identifier field, the source identifier field

being substantially shorter than said destination address, and

a message segment;

providing a source identifier code in the source identifier field, said source identifier code being associated with the variable-length message;

providing a type field in the header of each slot,

coding, into the type field, a code selected from:

a first code representing a beginning of a message,

a second code representing a continuation of a message, and

a third code, representing an end of a message;

transmitting the slots on the network; and

controlling reassembly of slots at the destination in accordance with the source identifier code, first code, second code, and third code of slots received at the destination.

27. (Unamended) Apparatus for transmitting variable-length messages on a network from a source having a source address to a destination having a destination address in fixed length slots, said apparatus including:

a segmentation machine for segmenting each message into a plurality of fixed length slots including a first slot, continuing slots, and a last slot, each of said slots including

a header field that includes a source identifier field, the source identifier field being substantially shorter than said destination address,

and a message segment;

coding means for providing the source identifier field with a source identifier code that is uniquely associated with the message to be transmitted for providing a type field in the header field of each slot, and for providing a code selected from a first

code, a second code, and a third code representing, respectively, a beginning of a message, a continuation of a message and an end of a message; and

a reassembly machine located, in use, at the destination, said reassembly machine including control means for controlling reassembly of slots in accordance with respective source identifier codes, the first code, the second code, and the third code of the slots.

Please add claims 28-38 as follows (Amended from the claims added by Preliminary Amendment dated December 29, 1994 in the first reissue)

28. A method for the connection-oriented transfer of variable-length messages in fixed-length slots from a source node having a source address to a destination node having a destination address, the method comprising:

    segmenting each message into a plurality of fixed-length slots including a first slot, continuing slots and a last slot, each of the slots including a header field and a message segment;

    providing, in the header fields of each of the slots, a source identifier code associated with the message,

    providing a type field for holding a code in the header of each slot,

    coding into the type field, a code selected from a first code, a second code, and a third code, respectively representing a beginning of a message, a continuation of a message, and an end of a message,

    transmitting the slots from the source node; and

controlling reassembly of the message on the basis of information in the header field of

slots received at the destination node.

29. The method as claimed in claim 28 further comprising storing, in a buffer at the destination

node, message segments associated with a single message.

30. The method as claimed in claim 29, further comprising

providing, to a comparator, the source identifier code of the first slot received at the

destination node;

providing, to the comparator, the source identifier code of each subsequently received

slot; and

storing the message segment of the subsequently received slot in the buffer in response to

an occurrence of a match between the source identifier code of the first slot and the

source identifier code of subsequent slots.

31. The method as claimed in claim 30, further comprising outputting a reassembled message

from the buffer in response to detection of the third code.

32. The method as claimed in claim 30, further comprising

providing multiple comparators and buffers at the destination node to enable

simultaneous receipt of a plurality of messages, each having its own source identifier

code, and

storing message segments from each message in a separate buffer.

33. An apparatus for the connection-oriented transfer of variable-length messages in fixed-length slots from a source node, having a source address, to a destination node, having a destination address, the apparatus comprising:

a segmentation machine for segmenting each message into a plurality of fixed-length slots including a first slot, continuing slots, and a last slot, each of the fixed-length slots including a header field, and a message segment, the segmentation machine being located, in use, at the source node;

a coder for providing, in the header field of each slot,

a source identifier field for holding a source identifier code associated with the message to be transmitted, and

a type field, for holding a code selected from a first code, a second code, and a third code, respectively representing a beginning of a message, a continuation of a message, and an end of a message, and

a reassembly machine for controlling reassembly of slots into the message in accord with information in the header field, the reassembly machine being located, in use, at the destination node.

34. The apparatus as claimed in claim **33** wherein the reassembly machine further comprises a selector for checking the third code and for providing source identifier codes to the comparator for comparison with subsequently received source identifier codes.

35. The apparatus as claimed in claim **34**, wherein the reassembly machine further comprises a plurality of comparators for enabling concurrent receipt of slots associated with different messages.

36. The apparatus as claimed in claim 35, further comprising means for providing source identifier codes of received slots to the plurality of comparators, thereby enabling the comparators to match slots having the same source identifier codes.

37. The apparatus as claimed in claim 36, further comprising:

a plurality of buffers for the message segments of the slots, and

a buffer selector circuit for selecting a particular buffer for receipt of all message segments of slots having the same source identifier code.

38. The apparatus as claimed in claim **34,** wherein the controller is configured to output a reassembled message from the buffer in response to detection of a third code, the reassembled message being associated with the source identifier code of the slot containing the detected third code.

Please add claims 39-70 as follows (Note: These claims were added by the 3rd Preliminary Amendment. In the 3rd Preliminary Amendment, these claims were numbered 39-71; however through inadvertence, there was no claim 43. These claims have been renumbered 39-70 to correct the numbering error.):

--39. The method of claim 15 in which the source identifier code is a label which enables the logical association of all segments belonging to said message and which enables them to be reassembled into the original message.--

--40. The apparatus of claim 23 in which the source identifier code is a label which enables the logical association of all segments belonging to said message and which enables them to be reassembled into the original message.--

--41.   A method of transmitting variable length messages on a network to a destination, said
method comprising

> segmenting each message into a plurality of fixed length slots, each of which slots
>> includes a header field and a message segment,
>
> providing a source identifier field in the header field of each slot, said source identifier
>> field including a source identifier code that is associated with the message to be
>> transmitted,
>
> transmitting the slots on the network,
>
> providing a type field in the header of each slot,
>
> coding into the type field a code selected from a first code, a second code, and a third
>> code, respectively representing a beginning of a message, a continuation of a
>> message, and an end of a message, and
>
> controlling the reassembly of received slots for delivery to the destination in accordance
>> with said source identifier code, and any of the first code, the second code, and the
>> third code.--

--42.   Apparatus for transmitting variable length messages on a network from a source to a
destination in fixed length slots, said apparatus including;

> a segmentation machine for segmenting the messages into fixed length slots, each of
>> which includes a header field and a message segment, said segmentation machine
>> providing

a source identifier field in the header of each slot, said source identifier field including a source identifier code that is associated with the message to be transmitted,

a type field in the header field of each slot, and

a code selected from a first code, a second code, and a third code representing, respectively, a beginning of a message, a continuation of a message and an end of a message; and

a reassembly machine controlling reassembly of the slots in accordance with the source identifier codes of the slots, and any of said first code, said second code, and said third code.--

--43.   A method of transmitting a variable-length message on a network to a destination, said method comprising:

segmenting the variable-length message into a plurality of fixed length slots including a first slot, continuing slots, and a last slot, each of said fixed length slots including

a header field that includes a source identifier field, and

a message segment;

providing a source identifier code in the source identifier field, said source identifier code being associated with the variable-length message;

providing a type field in the header of each slot,

coding, into the type field, a code selected from:

a first code representing a beginning of a message,

a second code representing a continuation of a message, and

a third code, representing an end of a message;

transmitting the slots on the network; and

controlling reassembly of slots in accordance with the source identifier code, and any of the first code, second code, and third code.--

--44. Apparatus for transmitting variable-length messages on a network to a destination in fixed length slots, said apparatus including:

a segmentation machine segmenting each message into a plurality of fixed length slots including a first slot, continuing slots, and a last slot, each of said slots including a header field that includes a source identifier field,

and a message segment;

a coder providing the source identifier field with a source identifier code that is associated with the message to be transmitted, a type field in the header field of each slot, and a code selected from a first code, a second code, and a third code representing, respectively, a beginning of a message, a continuation of a message and an end of a message; and

a reassembly machine controlling reassembly of slots in accordance with the source identifier codes, and any of the first code, the second code, and the third code of the slots.--

--45. A method of transmitting variable length messages on a network to a destination having a destination address, said method including the steps of:

segmenting each message into a plurality of fixed length slots including a first slot, continuing slots, and a last slot, each of said slots including a header field, which

includes a source identifier field which is substantially shorter than said destination address, and a message segment;

providing a source identifier code in the source identifier field, each source identifier code being associated with the message to be transmitted;

entering said destination address in the message segment of said first slot;

transmitting the slots on the network; and

controlling reassembly of slots in accordance with the source identifier code.

--46. Apparatus for transmitting variable length messages on a network to a destination, said apparatus including:

a segmentation machine segmenting each message into a plurality of fixed length slots including a first slot, continuing slots, and a last slot, each of said slots including a header field which includes a source identifier field and a message segment;

said segmentation machine providing a source identifier code in the source identifier field, each source identifier code being associated with the message to be transmitted, and entering said destination address in the message segment of said first slot;

a transmitter transmitting the slots on the network; and

a reassembly machine controlling reassembly of slots in accordance with the source identifier codes.--

--47. The method of claim 15 in which the step of coding into the type field comprises using each of the first code, the second code, and the third code in the headers of slots associated with a message.--

--48.   The apparatus of claim 23 in which the coding means provides each of the first code, the second code, and the third code in the headers of respective slots associated with a message.--

--49.   The method of claim 26 in which the step of coding into the type field comprises using each of the first code, the second code, and the third code in respective headers of slots associated with a message.--

--50.   The apparatus of claim 27 in which the coding means provides each of the first code, the second code, and the third code in the headers of slots associated with a message.--

--51.   The method of claim 28 in which the step of coding into the type field comprises using each of the first code, the second code, and the third code in respective headers of slots associated with a message.--

--52.   The apparatus of claim 33 in which the a coder provides, in respective header fields of slots associated with a message, each of the first code, the second code, and the third code.--

--53.   The method of claim 41 in which the step of coding into the type field comprises using each of the first code, the second code, and the third code in respective headers of slots associated with a message.--

--54.   The apparatus of claim 42 in which the segmentation machine provides each of the first code, the second code, and the third code in respective headers of slots associated with a message.--

--55.   The method of claim 43 in which the step of coding, into the type field, field comprises using each of the first code, the second code, and the third code in respective headers of slots associated with a message.--

--56.   The apparatus of claim 44 in which the coder provides each of the first code, the second code, and the third code in respective headers of slots associated with a message.--

--57.   A method for the connection-oriented transfer of variable-length messages in fixed-length slots via a source node and a destination node from a source having a source address to a destination having a destination address, the method comprising:

    segmenting each message into a plurality of fixed-length slots including a first slot, continuing slots and a last slot, each of the slots including a header field and a message segment;

    providing, in the header field of each of the slots, a source identifier code associated with the message,

    providing a type field in the header of each slot for holding a code,

    coding into the type field a code for distinguishing a last slot from prior slots;

transmitting the slots from the source node; and

controlling reassembly of the message in accordance with information in the header fields of slots received at the destination node.--

--58.   An apparatus for the connection-oriented transfer of variable-length messages in fixed-length slots via a source node and a destination node from a source having a source address, to a destination having a destination address, the apparatus comprising:

a segmentation machine for segmenting each message into a plurality of fixed-length slots including a first slot, continuing slots, and a last slot, each of the fixed-length slots including a header field, and a message segment, the segmentation machine being located, in use, at the source node;

a coder for providing, in the header field of each slot,

a source identifier field for holding a source identifier code associated with the message to be transmitted, and

a type field, for holding a code for distinguishing a last slot from previous slots; and

a reassembly machine for controlling reassembly of slots into the message in accordance with information in the header fields of slots received at the reassembly machine, the reassembly machine being located, in use, at the destination node.--

--59.   Apparatus for transmitting variable length messages in fixed length slots on a network, via a source node and a destination node, from a source having a source address to a destination having a destination address, said apparatus including;

a segmentation machine for segmenting the messages into fixed length slots, each of which includes a header field and a message segment, said segmentation machine including a coder providing

a source identifier field in the header of each slot, said source identifier field including a source identifier code that is associated with the message to be transmitted, and

a type field in the header field of each slot, and

a code in the type field selected from a first code, a second code, and a third code representing, respectively, a beginning of a message, a continuation of a message and an end of a message; and

a reassembly machine located, in use, at the destination, said reassembly machine controlling reassembly of the slots in accordance with respective source identifier codes of the slots, said reassembly machine being responsive to said source identifier code, said first code, said second code, and said third code.--

--60. The method of claim 41 in which the source identifier code is a label which enables the logical association of all segments belonging to said message and which enables them to be reassembled into the original message.--

--61. The apparatus of claim 42 in which the source identifier code is a label which enables the logical association of all segments belonging to said message and which enables them to be reassembled into the original message.--

--62.   The method of claim 43 in which the source identifier code is a label which enables the logical association of all segments belonging to said message and which enables them to be reassembled into the original message.--

--63.   The apparatus of claim 44 in which the source identifier code is a label which enables the logical association of all segments belonging to said message and which enables them to be reassembled into the original message.--

--64.   The method of claim 58 in which the source identifier code is a label which enables the logical association of all segments belonging to said message and which enables them to be reassembled into the original message.--

--65.   The method of claim 58 in which the step of coding, into the type field, field comprises using each of the first code, the second code, and the third code in the headers of slots associated with a message.--

--66.   The method of claim 59 in which the source identifier code is a label which enables the logical association of all fixed length slots belonging to said message and which enables them to be reassembled into the original message.--

--67.   The method of claim 59 in which the step of coding into the type field comprises using each of the first code, the second code, and the third code in the headers of slots associated with a message.--